

# 5G mmWave mobile FEMs using 45RFSOI

Boost RF performance, signal power and reliability


**\$1B**

More than one billion dollars in 45RFSOI design wins\*


**1st**

Access to industry's first and only Foundry post-fab RF turnkey services offering



Mobile devices have become more feature packed and indispensable each successive generation. With 5G rollouts promising ultrafast data rates over wider coverage areas, we will expect more from these devices, demanding glitch-free performance for even the most high-bandwidth uses, such as 8K video streaming. Making these advances possible requires new dimensions of innovation.

GlobalFoundries (GF®) delivers this innovation with 45RFSOI. Optimized for 5G mmWave cellular front-end module (FEM) applications, 45RFSOI combines high transmission power capabilities with industry-leading mmWave performance and reliability<sup>‡</sup> for beamformers and integrable low-noise amplifiers (LNAs), power amplifiers (PAs) and switches.

## 45RFSOI at a glance

Platform	Key features <sup>‡</sup>
45 nm PD-SOI	<ul style="list-style-type: none"> <li>• 23 dBm <math>P_{sat}</math> at &gt; 40% PAE<sup>†</sup> for PAs, with 10-year operation</li> <li>• Innovative, output-power enhanced PA FET</li> <li>• High <math>f_t/f_{max}</math> and device stacking</li> <li>• Lower insertion loss and noise figure</li> </ul>



**Stretch your reach:** 45RFSOI delivers superior  $f_t/f_{max}$ ,  $P_{max}$ , insertion loss, gain and noise figure benefits that help maximize connectivity properties and range, so consumers can keep enjoying data-greedy apps even when there's no cell tower in sight.



**Nix the noise:** 45RFSOI is built on a high-resistivity substrate and uses loss-optimized, back-end-of-line processing to improve noise isolation and harmonics suppression for high-quality, interference-free connections.



**Amp up battery life:** PAs that leverage 45RFSOI deliver the higher power gain and efficiency—up to 23 dBm  $P_{sat}$  at > 40% PAE—that can help extend battery life when you're on the go, and keep your smartphone cool when you're downloading that full-length 8K video.



**Pack more into less space:** 45RFSOI lets you integrate multiple RF elements into mmWave FEMs that have superior transmission power—or develop beamformers that use fewer chips for smaller, more cost-effective arrays.



**Fast track time to market:** Get your products to market faster with the industry's only Foundry RF post-fab turnkey services, which feature proprietary mmWave test capabilities and that enable you to tap into unrivalled RF expertise built on two decades of experience.

**LEARN MORE**

GF knows RF. Learn how our extensive mobile solutions portfolio can help you extend your 5G leadership at [globalfoundries.com/contact-us](https://globalfoundries.com/contact-us)

**Contact Us**



**5G cellular radio solutions from GF**

Solution	Application	Benefits
45RFSOI	5G mmWave	Superior performance with high $P_{sat}$ (up to 23 dBm) for premium smartphones
22FDX RF	5G mmWave	Superior performance with highest level of integration & high $P_{sat}$ (up to 20 dBm) for premium smartphones
8SW RF SOI	5G sub-6 GHz	Outstanding performance for premium & high-tier smartphones
7SW RF SOI	4G LTE & 5G	Great performance for entry & mid-tier smartphones, smart watches & other connected mobile devices

\* For both mobile and wireless infrastructure applications.

‡ Compared to bulk CMOS and competitive offerings.

◇ At 26 GHz.

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